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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,764	04/24/2001	Jes Thyssen	10932/162	6664

25700 7590 11/06/2002

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EXAMINER

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ART UNIT

PAPER NUMBER

2655

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 18

Application Number: 09/841,764

Filing Date: April 24, 2001

Appellant(s): THYSSEN ET AL.

MAILED

OCT 6 0 2002

Technology Center 2600

Farshad Farjami
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 15 October 2002.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The appellant's statement in the brief that all claims stand or fall together is not agreed with because appellant's brief does not provide reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

No additional prior art is relied upon by the examiner in the rejection of the claims under appeal other than those cited, which are:

6,182,032 B1

Rapeli

01-2001

6,029,127 A

Delargy et al

02-2000

5,436,899 A Fujino et al 07-1995

Mano et al ("Design of a Pitch Synchronous Innovation CELP Coder for Mobile Communications" IEEE Journal on Selected Areas in Communications (Jan 1995) pp 31-41)

Caire et al ("CDMA System Design through Asymptotic Analysis", Global Telecommunications Conference, pages 2456 - 2460 vol.5, 5-9 Dec. 1999)

Chung et al ("Multilevel RS/Convolutional Concatenated Coded QAM for Hybrid IBOC-AM Broadcasting", IEEE Transactions on Broadcasting, pages 49-59, March 2000)

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The rejections have been restated for clarity without material alteration.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Rapeli & Delargy et al

4. Claims 21-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli (U.S. Patent 6,182,032 B1) in view of Delargy et al (U.S. Patent 6,029,127).

5. Regarding claim 21, the device of Rapeli includes a *Voice Activity Detection circuit* (figure 2 item 29) coupled to a *processor* for the purpose of *selectively coding* (ibid. item 22). Rapeli further describes the coding as being a *plurality of coding modes for speech* (column 4 line 39-48) and *one for silence* (as *silence & pauses* in column 7 line 27). By not specifying a dependency between processing speech and non-speech segments, Rapeli makes it clear to a person of ordinary skill in the art of speech signal

processing that *the selection of the silent mode would be made independent of any previous speech coding mode.*

With particular regard to claim 38, the feature of *silence analysis and coding* is disclosed directly by Delargy et al in figure 1, which corresponds precisely with figure 7 of the immediate application.

It would have been obvious to apply the teachings of Delargy et al in the invention of Rapeli because Delargy et al teaches a person of ordinary skill in the art of speech signal processing to code each audio segment without regard for prior operations to avoid storing intermediate steps of prior processes.

6. Regarding claim 22, the claim is set forth with the same limits as claim 21.

Rapeli introduces his invention as being applicable to a *wireless communication* environment (in figure 1 and in column 1 line 14).

7. Regarding claim 23, the claim is set forth with the same limits as claim 22.

Rapeli defines his invention as being particular to *telephony* (ibid, line 13).

8. Regarding claim 24, the claim is set forth with the same limits as claim 23.

Rapeli defines his invention as being one of a *cellular telephone* (ibid, line 12).

9. Regarding claim 25, the claim is set forth with the same limits as claim 21. While Rapeli does not characterize the device as *hand-held*, the inclusion of a *laptop* portable

computer (item 8 in figure 1) configured with *wireless communication* capability (ibid. item 7) or more so, the well known *wireless internet connections* commercially advertised as available at the time of the invention. This configuration would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that the laptop was chosen over a desktop for its portability and that the natural progression from *desktop* to laptop would next incorporate *hand-held* to make the configuration even more portable.

10. Regarding claim 26 as understood by the Examiner, the claim is set forth with the same limits as claim 21. Rapeli makes it clear that his device will operate as part of a *computer network-based communications* (column 1 line 9).

11. Regarding claim 27 as understood by the Examiner, the claim is set forth with the same limits as claim 26. Rapeli makes it clear that his device operates with the *Internet* (column 1 line 14).

12. Regarding claim 28 as understood by the Examiner, the claim is set forth with the same limits as claim 27. Rapeli makes it clear that his *Internet* device includes the capability of *transmitting encoded speech* (shown in figures 1 & 2 and as is required to provide *speech capabilities* (column 1 line 16).

13. Regarding claim 29 as understood by the Examiner, the claim is set forth with the same limits as claim 21. The features of *computer network* and *telephony* were addressed in response to claims 23 through 26 and the claim is rejected for the same reason.

14. Regarding claim 30 as understood by the Examiner, the claim is set forth with the same limits as claim 29. The feature of the claim, being of a *telephone network* being *cellular*, is the same as those of a computer network and *telephony* as addressed in response to claims 23 and 24 and the claim is rejected for the same reason.

15. Regarding claim 31, the claim is set forth with the same limits as claim 21. Incorporation of a *data processor* is shown in figure 1 with the *laptop* (item 8) providing that functionality.

16. Regarding claim 32 as understood by the Examiner, the claim is set forth with the same limits as claim 21. As is the case for claims 29 & 30, the features of *computer network* and *telephony* were addressed in response to claims 23 through 26 and the claim is rejected for the same reason.

17. Regarding claim 33, the claim is set forth with the same limits as claim 21. Rapeli discloses *discontinuous* processing as taking place after a *silence description*

coding (column 7 lines 25-30) that would be without a bi-directional communication (ibid. line 54).

18. Regarding claim 34, Rapeli discloses a *multi-rate transcoder* operating in three modes, two suitable for speech and a lower rate for silence. With such direction coupled with the inadvisability of combining different transmissions for the same signal simultaneously would have made it obvious to a person of ordinary skill in the art of speech signal processing to process each speech segment according to its merits so as to convey abrupt transitions faithfully.

The additional feature whereby the processes are independent between speech and silence is the same as that of claim 21 and the rejection is upheld for the same reasons.

19. Regarding claim 35, the claim is set forth with the same limits as claim 34. Rapeli discloses *transmitting a 1st and 2nd segment* (in figure 5), in this case, for radio.

Rapeli & Fujino et al

20. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Fujino et al (U.S. Patent 5,436,899).

21. Regarding claim 36, the claim is set forth with the same limits as claim 35. While Rapeli discusses neither the process of *error checking* nor the use of *redundant data*,

Fujino et al do, in providing for increased performance measures and disclosing the techniques required for voice coding and transmission (column 12 lines 25-43).

With the instruction that the step of *error checking* is included as a requisite, namely that *the first function necessary for adopting an embedded multiplexing method is a redundancy detecting function of voice transmission*, Fujino et al would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that to incorporate the means for detecting and remedying errors is essential to competent speech signal transmission.

It would therefore have been obvious for Rapeli to apply the teachings of Fujino et al because Fujino et al would teach a person of ordinary skill in the art of speech signal processing to process errors by transmitting an error checking signal with any coded segment of the speech signal.

22. Regarding claim 37, the claim is set forth with the same limits as claim 36. Fujino et al incorporates the feature of *redundancy with error checking* as addressed in response to claim 36, and the claim is rejected for the same reasons provided above.

Rapeli

23. Claims 38-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli.

24. Regarding claim 38 as understood by the Examiner, while the components of coder, decoder and connecting network are well-known in the prior art of record as disclosed by Rapeli (in column 35-46), the arrangement of processing in order, a first segment and second segment followed by applying silence to the second segment would have been obvious to a person of ordinary skill in the art of speech signal processing to apply the requisite coding scheme to speech called for by speech, voice by voice and silence by silence in accord with the well known practices established to that date by the cited standards.

25. Regarding claim 39 as understood by the Examiner, the claim is set forth with the same limits as claim 38. Rapeli discloses *generating reproduced speech signals* (column 4 line 38 explanation of figure 1 item 10) that would necessarily be expected to be reasonably consistent with the original signal.

26. Regarding claim 40, the claim is set forth with the same limits as claim 39. The features of the claim are the same as claim 33 and the claim is rejected for the same reasons.

27. Regarding claim 41, the claim is set forth with the same limits as claim 39. The features of the claim are the same as claim 22 and the claim is rejected for the same reasons.

28. Regarding claim 42, the claim is set forth with the same limits as claim 39. The features of the claim are the same as claim 26 and the claim is rejected for the same reasons.

29. Regarding claim 43, the claim is set forth with the same limits as claim 42. Rapeli discloses the applicability to Local Area Networks (column 1 line 35).

30. Regarding claim 44, the claim is set forth with the same limits as claim 42. Rapeli discloses the application of wired networks (column 1 line 13).

31. Regarding claim 45, the claim is set forth with the same limits as claim 44. Rapeli discloses the application of mixed wired/wireless networks (column 1 line 14) in any combination.

32. Regarding claim 46, Rapeli addresses all features, namely:

- Those features of *multi-rate coder and decoder* are the same as claim 38 and the grounds of rejection applied there are maintained in this instance.
- That Rapeli discloses the feature of providing *comfort noise* (column 1 line 64).

Rapeli & Fujino et al

33. Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Fujino et al.

34. Regarding claims 47 and 48, the claims are set forth with the same limits as claim 46 and 47, respectively. The features of the claim are the same as claim 36 and 37, and the claims are rejected for the same reasons.

Rapeli, Fujino et al & Chung et al

35. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Fujino et al and further in view of Chung et al ("Multilevel RS/Convolutional Concatenated Coded QAM for Hybrid IBOC-AM Broadcasting", IEEE Transactions on Broadcasting, pages 49-59, March 2000).

36. Regarding claim 49, the claim is set forth with the same limits as claim 48. While the prior art of record and Chung et al share the interest with the immediate application of coding speech signals effectively, and *while the disclosures of both Rapeli and Fujino et al necessarily involve band utilization in carrying signals and control information, neither Rapeli and Fujino et al specifically mention that the amount of the redundant data transmitted would depend on the amount of communication bandwidth available.*

Chung et al's acknowledgement of the relationship between power and bandwidth limits on providing sufficient redundancy (introduced toward the end of the abstract) illustrate that the relationships are well known in fields involving transmitting and receiving. Consequently, it would have been obvious to a person of ordinary skill in the field of speech signal processing to adjust the redundant data so as to avoid

congestion and bottlenecks when remaining bandwidth would be insufficient to maintain a signal with numerous correction data.

Rapeli, Fujino et al, Chung et al & Mano et al

37. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Fujino et al and further in view of Chung et al and further in view of Mano et al ("Design of a Pitch Synchronous Innovation CELP Coder for Mobile Communications", IEEE Journal on Selected Areas in Communications, pages: 31 – 41, Jan. 1995).

Regarding claim 50, the claim is set forth with the same limits as claim 49. While the prior art of record and Mano et al all share interest in coding and transmitting, *neither Rapeli and Fujino et al specifically mention the use of perceptual weighting filters*, the teachings of Mano et al with respect to the use of *perceptual weighting filters* (as introduced in the Abstract) are germane to the problem of maintaining signal quality. As a result, it would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to employ such filtering to limit the extreme transients introduced by signal reconstruction to an acceptable audio level.

Rapeli & Caire et al

38. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Caire et al ("CDMA System Design through Asymptotic Analysis", Global Telecommunications Conference, pages 2456 - 2460 vol.5, 5-9 Dec. 1999).

39. Regarding claim 51, the claim is set forth with the same limits as claim 46. Where Rapeli selects the best coding that would provide satisfactory results consuming at the lower cost, he does not detail those factors that would cause a switch in coding schemes. While loss of power would seem to be one such obvious choice, Rapeli does not specifically disclose this as a factor but instead determines the need for switching on the basis of perceived signal characteristics relating to speech. However, Caire et al examines other areas such as power considerations (last paragraph, right column page 2458) to anticipate fluctuations that would adversely affect signal quality. It would have been obvious to a person of ordinary skill in the field of speech signal processing to apply the teachings of Caire et al to Rapeli so as to reduce the coding rate in an effort to conserve power when necessary and to anticipate problems rather than force a loss of transmission altogether.

Rapeli & Mano et al

40. Claims 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rapeli in view of Mano et al.

41. Regarding claim 52, the claim is set forth with the same limits as claim 46. Where Rapeli selects the best coding that would provide satisfactory results consuming at the lower cost, he does not detail those factors that would cause a switch in coding schemes. Mano et al discloses that interference (as *non-periodic background noise*, 2nd

paragraph, right column page 35) would be an indication that a change in coding is needed to avoid poor signal. It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that interference that *electromagnetic interference* by itself would degrade the source signal enough to switch to a higher coding mode, and consequently that early detection and change would anticipate the event and reduce the data lost from a signal degraded enough to cause the transition.

42. Regarding claim 53, the claim is set forth with the same limits as claim 46. The feature of the claim is the same as claim 52, with the exception being that the *interference is associated with radio frequency level fluctuations*. The claim is therefore rejected for the same reasons, there being no apparent difference between the origin of the frequencies stated in the specification and their effect being well known to be identical.

(11) Response to Argument

1. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *loop-back*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

2. In response to applicant's argument that the prior art of record *fails to disclose selection of silent mode independently of prior coding*, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In the issue of the immediate application, the prior art of record teaches switching operation at the instant periods of silence, without *involving or requiring any consideration of previous operations*. Changing operations at periods of silence avoids interfering with the quality of speech, and each decision is made independently of prior coding.

3. In response to applicant's argument that *the appellant discloses generating comfort noise for discontinuous transmission in addition to conventional transmission*, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

4. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Examiner
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dan
November 2, 2002

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Dan J. Z 11/4/02